AFM
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Phase 1
Arborist Report
Lee Property
Holmes Point, Kirkland, WA

December 9th, 2014

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Appendix

1. Introduction

American Forest Management, Inc. was contacted by Leslie Lee, and was asked to compile an 'Arborist Report' for a property in the Holmes Point Area of Kirkland, WA. The purpose of this Phase 1 assessment is to evaluate the significant tree conditions in the wetland buffer and where the proposed driveway will be redeveloped to access the proposed home site.

The proposed development encompasses the property located at the end of NE 130th PL, parcel # 40570000038. Our assignment is to prepare a written report on wetland tree conditions, and tree conditions within the easement; and to determine the degree of tree impacts associated with re-constructing an old road grade to access the proposed home-site area.

Date of Field Examination: December 4th, 2014

2. Description

The subject property is vacant. It is comprised of native coniferous and deciduous forest. The area of the parcel subject to this report is the triangular area on the west portion of the parcel. 50 significant trees were assessed in the study area. This area is comprised primarily of deciduous species of red alder and big leaf maple, with a minor component of Douglas-fir, western red cedar and western hemlock.

The proposed driveway will be constructed on an old road grade that exists in the undeveloped easement that borders the subject property to the northwest. This road grade is in fairly good shape and can easily be upgraded to driveway standards without requiring the removal of a significant number of trees.

All of the significant trees in the study area have been identified with a numbered aluminum tag attached to the lower trunk. These tree tag numbers correspond with attached Tree Condition Summary Tables and tree map.

3. Methodology

Each tree in this report was visited. Tree diameters were measured by tape. The tree heights were measured using a Spiegel Relaskop. Each tree was visually examined for defects and vigor. The tree assessment procedure involves the examination of many factors:

- The crown of the tree is examined for current vigor. This is comprised of inspecting the crown (foliage, buds and branches) for color, density, form, and annual shoot growth, limb dieback and disease. The percentage of live crown is estimated for coniferous species only and scored appropriately.

- The bole or main stem of the tree is inspected for decay, which includes cavities, wounds, fruiting bodies of decay (conks or mushrooms), seams, insects, bleeding, callus development, broken or dead tops, structural defects and unnatural leans. Structural defects include crooks, forks with V-shaped crotches, multiple attachments, and excessive sweep.

- The root collar and roots are inspected for the presence of decay, insects and/or damage, as well as if they have been injured, undermined or exposed, or original grade has been altered.

Based on these factors a determination of viability is made. Trees considered 'non-viable' are trees that are in poor condition due to disease, extensive decay and/or cumulative structural defects, which exacerbate failure potential. A 'viable' tree is a tree found to be in good health, in a sound condition with minimal defects and is suitable for its location. Also, it will be wind firm if isolated or left as part of a grouping or grove of trees. A 'borderline' viable tree is a tree where its viability is in question. These are trees that are beginning to display symptoms of decline due to age, species related problems and/or man caused problems. Borderline trees are not expected to positively contribute to the landscape for the long-term and are not recommended for retention.

4. Observations

Tree composition around the small wetland is dominantly native deciduous species of red alder and big leaf maple. Farther away from the wetland area are upland stands of more coniferous species, primarily Douglas-fir. The wetland is sparsely treed. Ground vegetation is primarily salmonberry and Himalayan blackberry. The subject parcel is heavily impacted by invasive plant species, primarily English ivy which has consumed several trees.

The red alder is over-mature. Many are considered non-viable due to age and present decline. Several have developed heavy leans toward the proposed driveway and are considered high risk.

The big leaf maple is also considered mature. Many have significant defects. There have been several maple failures in the immediate area in the past, associated with *Kretzschmaria deusta* (soft rot fungus) and dense accumulation of English ivy in the crowns. Tree # 111 has a major soft rot infection and is considered high risk. The maple has developed poorly tapered stems due to heavy competition for sunlight with adjacent trees.

The coniferous species in the study area appear sound and in good condition. No concerning conditions were observed with the Douglas-fir, western red cedar or the one subject western hemlock tree. No outward evidence of root disease was observed in the study area.

There are several trees in the easement that are in poor condition. The high risk trees have been identified and included in this assessment.

5. Discussion

There are several over mature red alder trees that should be removed to abate the hazardous condition if work is initiated on the property. Many have heavy leans toward the proposed driveway. Alder is a fast-growing, short-lived pioneer species. These are at the end of their natural life spans and have begun to naturally decline. Alder dies back from the top down; shedding upper crown components as it naturally declines and deteriorates. Ivy in the upper crowns will contribute to premature failure. The alder that lean away from the proposed driveway can be retained since their failure will not hit an active target.

Tree #103 above the proposed driveway has a natural self-corrected lean. The driveway should be able to be constructed without impacting its stability. It is situated far enough upslope where impacts should not be consequential. All of the subject coniferous species can be feasibly retained during the re-development of the driveway near the wetland buffer.

There are several trees in the easement that have a high probability of failure down slope towards the proposed driveway. It would be most practical to remove these prior to beginning work on the subject property to abate hazardous conditions.

The removal of the declining alder and problem big leaf maple trees will not have significant adverse impacts on remaining trees. The alder will die out in the near future anyways. It would best to remove them and establish native coniferous species in the understory to ultimately enhance the wetland and its buffer. Mitigating tree removals with plantings in the wetland and buffer is appropriate. Native coniferous species appropriate for the site would include western red cedar, Sitka spruce and western white pine. There are several young western red cedar saplings naturally regenerating the area. These should be protected.

6. Summary

In order to safely and appropriately re-develop the existing road grade to a residential driveway, several high-risk trees warrant removal. There are 11 non-viable trees in and adjacent to the easement that warrant removal. There are an 11 additional trees that are in “borderline” condition where removal is also recommended. These are primarily over-mature red alder with heavy leans toward the proposed driveway. See the table below for recommended tree removals. The recommended removals should not have adverse impacts on residual trees.

The 11 “borderline” trees shall be replaced to mitigate the loss of tree canopy. Tree replacements shall be concentrated in the small wetland area to enhance the wetland functions. Replacement species shall be native coniferous species and include a mix of western red cedar and Sitka spruce.

For planting and maintenance specifications, refer to chapters 95.50 and 51 of the Kirkland Zoning Code.

There is no warranty suggested for any of the trees subject to this report. Weather, latent tree conditions, and future man-caused activities could cause physiologic changes and deteriorating tree condition. Over time, deteriorating tree conditions may appear and there may be conditions, which are not now visible which, could cause tree failure. This report or the verbal comments made at the site in no way warrant the structural stability or long term condition of any tree, but represent my opinion based on the observations made.

Nearly all trees in any condition standing within reach of improvements or human use areas represent hazards that could lead to damage or injury.

Please call if you have any questions or I can be of further assistance.

Sincerely,

Bob Layton
ISA Certified Arborist #PN-2714A
ISA Tree Risk Assessor Qualified

Subject Trees

Tag #	Species	DBH	Condition	Proposal
101	apple	14	fair-poor	Remove
102	red alder	14	fair-poor	Remove
103	Douglas-fir	34	fair-good	Retain
104	big leaf maple	17	fair	Retain
105	big leaf maple	9	poor	Remove
106	red alder	23	poor	Remove
107	big leaf maple	8	fair-poor	Remove
108	red alder	16	poor	Remove
109	red alder	18	poor	Remove
110	big leaf maple	25	poor	Remove
111	big leaf maple	27	fair-poor	Retain
112	big leaf maple	13	poor	Remove
113	red alder	20	fair-poor	Remove
114	red alder	12	poor	Remove
115	big leaf maple	8	fair	Retain
116	red alder	20	fair-poor	Remove
117	red alder	21	fair-poor	Remove
118	red alder	20	fair-poor	Remove
119	western red cedar	8	fair	Retain
120	red alder	16	poor	Remove
121	red alder	12	fair-poor	Remove
122	red alder	17	fair-poor	Remove
123	red alder	16	fair-poor	Remove
124	red alder	14	fair-poor	Remove
125	big leaf maple	21	fair-good	Retain
126	big leaf maple	10	fair	Retain
127	red alder	14	fair-poor	Remove
128	Douglas-fir	10	fair	Retain
129	Douglas-fir	9	fair	Retain
130	red alder	28	fair-poor	Retain
131	big leaf maple	17	fair-poor	Retain
132	big leaf maple	22	fair	Retain
133	big leaf maple	14	fair-poor	Remove
134	western red cedar	6	good	Retain
135	red alder	26	poor	Remove
136	red alder	29	fair-poor	Retain
137	big leaf maple	29	fair	Retain
138	big leaf maple	10	fair-poor	Retain
139	big leaf maple	13	fair-poor	Retain
140	big leaf maple	17	fair	Retain
141	western red cedar	9	good	Retain
142	big leaf maple (7)	8-16	fair	Retain
143	western hemlock	13	fair	Retain
144	big leaf maple (3)	8-20	fair	Retain
145	big leaf maple (3)	8-14	fair	Retain
146	big leaf maple	8	fair	Retain
147	big leaf maple	19	fair-good	Retain
148	big leaf maple (2)	19,14	fair-good	Retain
149	red alder	27	fair-poor	Retain
150	big leaf maple	21	fair-poor	Retain

Subject Area

Tree #112, extensive decay in right stem of forked top

Natural crown dieback of over-mature subject red alder

Tree #110, stability compromised by major soft rot infection, high-risk

Wetland buffer

Subject wetland

Tree Summary Table

For: Leslie Lee
Holmes Point
Parcel #40570000038

American Forest Management, Inc

Date: 12/4/2014
Inspector: Layton

Tree/Tag #	Species	Native/ Planted/ Volunteer	DBH	Height	Tree Credit	Drip-Line/Trees Impacted by Driveway				Condition	Viability	Comments
						N	S	E	W			
101	apple		14	30		0	20	6	6	fair-poor	non-viable	extensive trunk rot, lean to driveway
102	red alder		14	55		0	30	6	6	fair-poor	non-viable	dead, broken top, mature, decline
103	Douglas-fir		34	130		6	20	8	9	fair-good	viable	sel-corrected lean, sound trunk
104	big leaf maple		17	80		10	16	6	10	fair	viable	ivy in crown, sparse crown
105	big leaf maple		9	78						poor	non-viable	poor form-taper, compromised by ivy
106	red alder		23	95						poor	non-viable	overmature, stability compromised by alder
107	big leaf maple		8	65		0	12	8	4	fair-poor	borderline	poor form-taper, compromised by ivy
108	red alder		16	95						poor	non-viable	heavy lean to driveway, high risk
109	red alder		18	90						poor	non-viable	heavy lean to driveway, sap rot on trunk
110	big leaf maple		25	90						poor	non-viable	major soft rot infection, decay at fork
111	big leaf maple		27	95		0	20	12	8	fair-poor	borderline	previous branch failures, moderate risk
112	big leaf maple		13	84						poor	non-viable	poor form-taper, high risk
113	red alder		20	89						fair-poor	borderline	overmature, incipient decline
114	red alder		12	70						poor	non-viable	trunk rot, heavy lean
115	big leaf maple		8	44		10	16	14	8	fair	viable	old broken top, poor form, suppressed
116	red alder		20	90						fair-poor	borderline	over-mature, significant decline
117	red alder		21	97						fair-poor	borderline	over-mature, significant trunk rot
118	red alder		20	100						fair-poor	borderline	forked top, high risk, compromised by ivy
119	western red cedar		8	24						fair	viable	somewhat suppressed, okay
120	red alder		16	85						poor	non-viable	heavy lean, trunk rot, high risk
121	red alder		12	90						fair-poor	borderline	poor form, structure
122	red alder		17	95						fair-poor	borderline	over-mature, lean
123	red alder		16	85						fair-poor	borderline	over-mature, forked top
124	red alder		14	85						fair-poor	borderline	lean, poor taper
125	big leaf maple		21	110		10	18	10	18	fair-good	viable	minor crook, sound trunk

Parcel Trees - Drip-Line and Limits of Disturbance measurements from face of trunk
Trees on neighboring properties - Drip-Line and Limits of Disturbance measurements from property line

Tree Summary Table

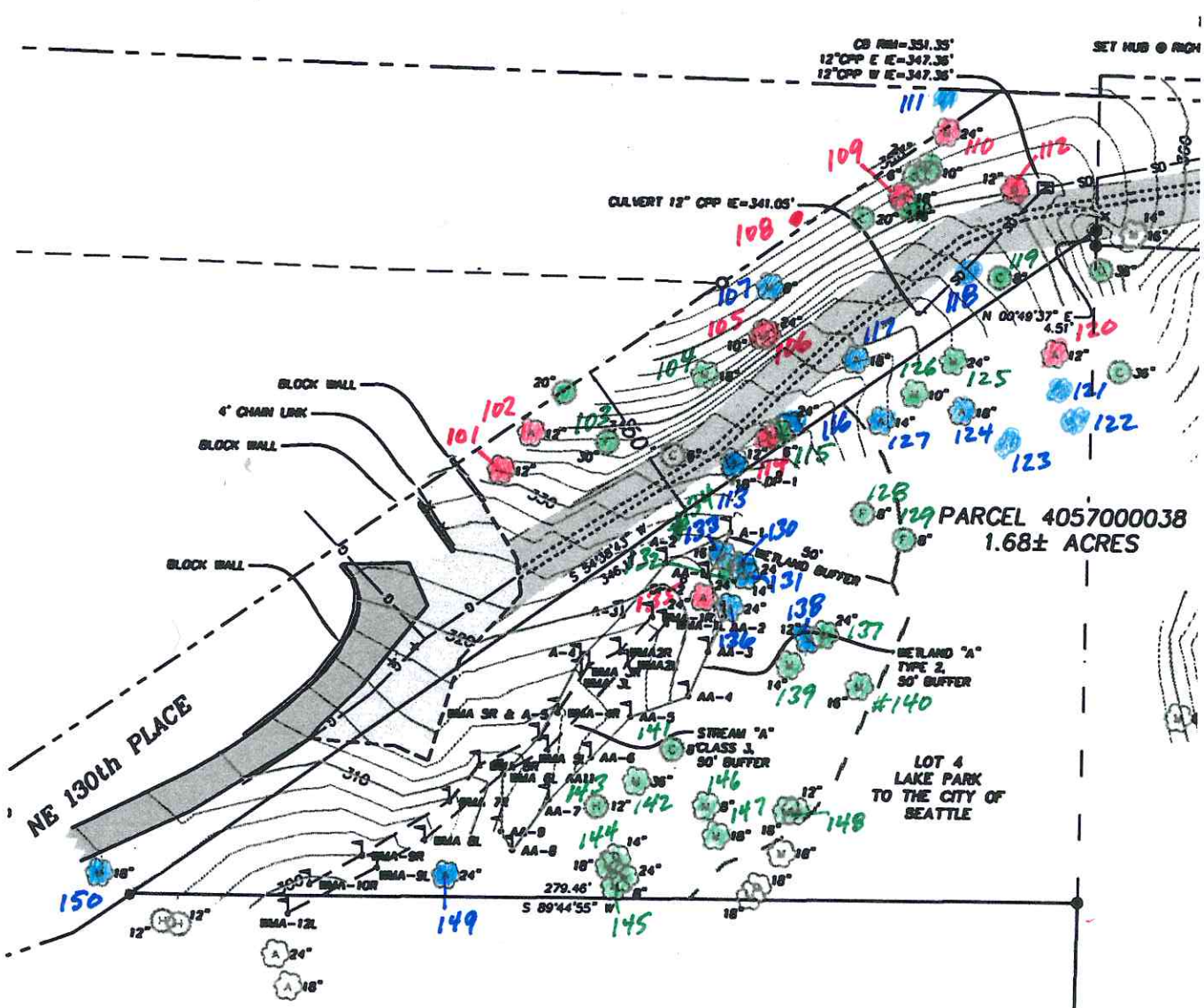
American Forest Management, Inc

For: Leslie Lee
Holmes Point
Parcel #40570000038

Date: 12/4/2014
Inspector: Layton

Tree/Tag #	Species	Native/ Planted/ Volunteer	DBH	Height	Tree Credit	Drip-Line/Trees Impacted by Driveway N	S	E	W	Condition	Viability	Comments
126	big leaf maple	10	94			8	6	0	12	fair	viable	significant crook, stunted top
127	red alder	14	95							fair-poor	borderline	over-mature, lean
128	Douglas-fir	10	50			6	6	6	6	fair	viable	suppressed
129	Douglas-fir	9	55			4	4	4	4	fair	viable	small crown, suppressed
130	red alder	28	100							fair-poor	borderline	leans away from driveway
131	big leaf maple	17	70							fair-poor	borderline	leans away from driveway
132	big leaf maple	22	95							fair	viable	appears stable
133	big leaf maple	14	50							fair-poor	borderline	heavy lean to driveway
134	western red cedar	6	20			6	6	6	6	good	viable	no concerns
135	red alder	26	90							poor	non-viable	dead top, in vast decline
136	red alder	29	90							fair-poor	borderline	leans away from driveway
137	big leaf maple	29	100							fair	viable	leans away from driveway
138	big leaf maple	10	65							fair-poor	borderline	suppressed, low risk
139	big leaf maple	13	70							fair-poor	viable	suppressed crown, poor form
140	big leaf maple	17	80							fair	viable	low risk
141	western red cedar	9	30							good	viable	no concerns
142	big leaf maple (7)	8-16	100							fair	viable	cluster, moderate risk
143	western hemlock	13	44							fair	viable	somewhat suppressed
144	big leaf maple (3)	8-20	90							fair	viable	some trunk decay, moderate risk
145	big leaf maple (3)	8-14	85							fair	viable	some trunk decay, moderate risk
146	big leaf maple	8	60							fair	viable	suppressed
147	big leaf maple	19	100							fair-good	viable	sound, low to moderate risk
148	big leaf maple (2)	19,14	100							fair-good	viable	sound, low to moderate risk
149	red alder	27	90							fair-poor	borderline	leans parallel to driveway, ok to retain
150	big leaf maple	21	95			18	2	20	6	fair-poor	borderline	forked top, covered with ivy

Parcel Trees - Drip-Line and Limits of Disturbance measurements from face of trunk
Trees on neighboring properties - Drip-Line and Limits of Disturbance measurements from property line



LEE PROPERTY - PHASE 1 TREE MAP

- VIABLE (FAIR TO GOOD CONDITION)
  FEASIBLE TO RETAIN
- NON-VIABLE (POOR CONDITION/HIGH RISK)
  REMOVAL RECOMMENDED
- BORDERLINE (FAIR TO POOR CONDITION)
  NOT EXPECTED TO POSITIVELY CONTRIBUTE
  REMOVAL RECOMMENDED WHERE TARGET IS PRESENT